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TITLE: Data processing system with improved work flow system
              and method

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INVENTOR-INFORMATION:
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FIELD-OF-SEARCH: 395/155; 395/149 ; 395/161 ; 395/275 ; 395/650 ; 364/188
        ; 364/401 ; 364/222.22

REF-CITED:
          U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME		US-CL	
4503499	March 1985	Mason et al.	N/A	364/222.2	N/A
4751635	June 1988	Kret	395/600	N/A	N/A
4875162	October 1989	Ferriter et al.	364/401	N/A	N/A
5054096	October 1991	Beizer	N/A	382/41	N/A
5109337	April 1992	Ferriter et al.	364/401	N/A	N/A
5121319	June 1992	Fath et al.	364/188	N/A	N/A
5228123	July 1993	Heckel	395/155	N/A	N/A
5293475	March 1994	Hennigan et al.	N/A	395/155	N/A
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OTHER PUBLICATIONS

W. Fisher, et all, "FileNed: A Distributed System Supporting WorkFlo; a

Flexible Office Procedures Control Language," IEEE Conference Paper, Apr. 27-29, 1987, Gaithersburg, MD, IEEE Computer Society Press, 1987, CH2414-1/897/0000/0226, pp. 226-232.

ART-UNIT: 242

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ABSTRACT:

A Work Flow Manager (WFM), or process manager, is the software to manage and control the flow of work items from one function to the next in a well-defined application process to achieve the complete processing of those work items. Applications of WFMs include the processing of imaged or multimedia documents such as health and other insurance forms, filmless radiology, IRS tax submissions, and FBI fingerprint and voice identification. The invention WFM:

   a. provides an improved, scalable subsystem and method for work flow management;

   b. partitions the application (work flow) process into component distributed services, each represented by an OSF Distributed Computer Environment (DCE) service;

   c. defines the application process with a state transition diagram (STD);

   d. uses centralized control software with a work-in-process (WIP) manager, a work queue manager, and a WIP submission attributes data base manager;

   e. defines and uses a common "pull system" protocol for communication between the WFM and the component distributed services;

   f. distinguishes WIP submissions from archived submissions; and

   g. uses an "attribute-base file system" to store submissions, typically implemented with both a data base for submission attributes (including the current state of WIP submissions), and a distributed file system for submission contents files.

16 Claims, 30 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 22

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Detailed Description Text - DETX (214):

Typically, a radiologist dictates diagnoses onto tape in a recording machine, the tapes go to a typist for manual transcription, and the radiologist reviews and approves the transcribed text. Each approved diagnosis is associated with the corresponding medical images in the radiology information system or with the patient record in the hospital information system. With emerging voice recognition technology, this process may be replaced with automated transcription. Yet, another possibility is to store the audio diagnosis file as is with no transcription.

Detailed Description Text - DETX (216):

FIG. 16(a) shows the flow diagram of an example radiology process. First in 1601, an order is entered to perform medical imaging on a patient. Then 1602 the patient visits the modality area or room, an the modality operator uses the modality to capture images. In 1603, these images are forwarded electronically to a radiologist for diagnosis. For simplicity, we assume here that the system stores audio diagnosis files as is with no accompanying transcription. In 1604, the medical images and associated diagnosis are archived. In 1605, the medical images and associated diagnosis are reviewed by the attending physician.

Detailed Description Text - DETX (217):

FIG. 16(b) shows an example STD of the filmless radiology application. In the Entering Order state, 1611, a hospital worker enters the medical imaging order, as requested by the attending physician, into the WIP (work-in-process) database, and schedules the patient on the modality. The system provides modality operators with a daily schedule of patients for imaging. If the patient no-shows, 1612, then a hospital worker will need to reschedule or cancel the patient. Otherwise, after medical imaging, patient data and medical images arrive in the work flow system. In the Needs Diagnosis state, 1613, the WFM records image metadata with associated patient data in the WIP database, and enqueues this work item for a radiologist. The WFM dispatches work items to radiologist. In the Needs Archiving state, 1614, when the diagnosis is done, the WFM enqueues the images and diagnosis for archiving, sends the data to the workstation of the attending physician, and notifies the attending physician that the order is completed. In the Needs Review state, 1615, the attending physician reviews the images and diagnosis, consults with the radiologist if necessary, talks to the patient, and proceeds with treatment or orders additional medical imaging.

Detailed Description Text - DETX (218):

For this example, from a software, DCE services, and work queues perspective, the filmless radiology software services include: order entry, medical imaging, diagnosis, archiving, retrieval and review. A transcription service is technology dependent. A retention management service would possibly hold pediatric images until the patient is 21, mammographies for the patient life, and other images for some specified period like three or five years, depending on the medical condition.